PATENT

Attorney Docket No. SIC-04-033

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of:

TATSUYA KAWAKAMI

Application No.: 10/711,702

Filed: September 30, 2004

For: BICYCLE SHIFT DEVICE HAVING A LINEARLY SLIDING SHIFT LEVER OPERATED BY A PIVOTING INTERFACE MEMBER

Examiner: Vinh Luong

Art Unit: 3656

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

This is an appeal brief for the above-captioned matter.

I. Real Party In Interest

The assignee and real party in interest is Shimano, Inc., a Japanese corporation having a principal place of business in Osaka, Japan.

II. Related Appeals And Interferences

There are no prior or pending appeals, interferences or judicial proceedings known to the appellant, to appellant's legal representative, or to the assignee which may be related to, directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. Status Of Claims

Claims 1-8, 11-21, 25 and 26 are pending under final rejection and are under appeal.

Claims 9, 10 and 22-24 are pending and have been objected to as being dependent upon a rejected base claim, but those claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim.

IV. Status Of Amendments

No amendment was filed subsequent to final rejection.

V. Summary Of Claimed Subject Matter

The application discloses a bicycle shift control device which operates a bicycle transmission gear shifting mechanism via a shift control cable. In the following discussion, cited reference numbers and text are examples for the elected embodiments (Figs. 10 and 11) only and are not intended to be limiting. Line numbers refer to the line numbers within each individually cited paragraph.

As recited in independent claim 1, a bicycle shift control device ((430), Fig. 10, page 8, paragraph [0027], lines 1-6; (440), Fig. 11, page 8, paragraph [0028], lines 1-6) which operates a shifting mechanism (not shown) via a shift control cable ((104), Fig. 1, page 3, paragraph [0014], lines 2-6) comprises:

a mounting member ((103), Fig. 10, page 3, paragraph [0014], lines 2-6) structured to mount the shift control device to a handlebar ((101), Fig. 1, page 3, paragraph [0014], lines 2-6), wherein the mounting member (103) defines a handlebar mounting axis ((HB), Figs. 10-11, page 3, paragraph [0014], lines 2-6);

a control body ((170), Fig. 3, page 4, paragraph [0016], lines 3-5) supported by the mounting member (103) and rotatable about a rotational axis ((X) Figs. 10-11, page 4, paragraph [0016], lines 3-5) for controlling the shift control cable (104);

a first operating body ((220), Figs. 10-11, page 3, paragraph [0014], lines 6-8) having an abutment ((201), Figs. 10-11, page 3, paragraph [0014], lines 8-9) in a position spaced apart from the control body (170) and which is coupled to the shift control device (430, 440) for displacement between a first home position ((HP1), Fig. 4, page 3, paragraph [0009], line 1; page 5, paragraph [0019], lines 3-5) and a first shift position (Fig. 5, page 3, paragraph [0010], lines 1-2);

a first transmission ((150), Fig. 3, page 4, paragraph [0016], lines 5-9) which converts the displacement of the first operating body (220) from the first home position (HP1) to the first shift position into a rotational displacement of the control body (170) (page 4, paragraph [0016], lines 5-9), wherein the first transmission (150) includes a plurality of ratchet teeth ((172), Fig. 6, page 4, paragraph [0017], lines 5-8);

an interface member ((434), Fig. 10, page 8, paragraph [0027], lines 1-6; (444), Fig. 11, page 8, paragraph [0028], lines 1-6) movably mounted relative to the first operating body (220) and having an operating force receiving surface ((435), Fig. 10, page 8, paragraph [0027], lines 1-6; (445), Fig. 11, page 8, paragraph [0028], lines 1-6) and an operating force applying surface ((436), Fig. 10, page 8, paragraph [0027], lines 1-6; (446), Fig. 11, page 8, paragraph [0028], lines 1-6), wherein the operating force receiving surface (435, 445) is adapted to receive an operating force from a rider (Page 8, paragraph [0027], lines 13-15; page 8, paragraph [0028], lines 13-15);

wherein the interface member (434, 444) pivots around a pivot axis ((P), Fig. 10, page 8, paragraph [0027], lines 1-6; Fig. 11, page 8, paragraph [0028], lines 1-6) so that the operating force applying surface (436, 446) applies the operating force to the abutment (201) of the first operating body (220) for moving the first operating body (220) from the first home position (HP1) to the first shift position (Page 8, paragraph [0027], lines 13-15; page 8, paragraph [0028], lines 13-15);

wherein the pivot axis (P) is inclined relative to the handlebar mounting axis (HB) (Fig. 10, Page 8, paragraph [0027], lines 1-6; Fig. 11, page 8, paragraph [0028], lines 1-6); and

wherein the interface member (434, 444) moves (as shown by the arrows adjacent to interface members (434, 444) in Figs. 10 and 11) in a direction toward a plane (PL) that contains the handlebar mounting axis (HB) and is parallel with the rotational axis (X) (as shown in Figs. 10 and 11) when the first operating body (220) moves from the first home position (HP1) toward the first shift position (Page 8, paragraph [0027], lines 6-8; page 8, paragraph [0028], lines 6-8).

VI. Grounds of Rejection to be Reviewed on Appeal

Claims 25 and 26 stand rejected under 35 U.S.C. §112 as failing to comply with the written description requirement.

Claims 1, 13 and 18 were provisionally rejected on the ground of nonstatutory obviousness-

type double patenting as being unpatentable over claims 1, 8, 18 and 19 of copending application no. 11/389,658 ("Appl. '658").

Claims 1-8 and 11-21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shahana (EP 1,134,158 A2) ("Shahana").

VII. Argument

Rejection under 35 U.S.C. §112

Claims 25 and 26.

The dispute centers around the limitation "wherein, when the device is oriented such that the rotational axis (X) is vertical, the pivot axis (P) extends at least in part in a vertical direction" as recited in claim 25. This limitation was added to instruct one of ordinary skill in the art how to determine infringement.

As an initial matter, the claims in this application are intended to cover one or more of the embodiments shown in Figs. 8-11 and described at paragraphs [0025]-[0028] of the application. Those embodiments are an improvement over the prior art device shown in Figs. 1-7. As stated at the beginning of paragraph [0025], "[w]hile operating tab (202) pivoted around a pivot axis (P) that was substantially parallel to the handlebar axis (HB) in the above embodiments, the pivot axis (P) could be inclined relative to the handlebar axis (HB) by any degree to accommodate different riding styles." The inclined pivot axis feature, in conjunction with the fact that operating tab (202) (interface member) is *movably* mounted relative to sliding operating body (220) (first operating body) as recited in claim 1, allows the device to accommodate different riding styles without requiring a substantial redesign of the entire shift control device as in other prior art devices.

In response to a restriction requirement dated January 2, 2008, the species embodiments shown in Figs. 10-11 were elected for prosecution on the merits. Those elected embodiments are discussed in paragraphs [0027]-[0028] of the application. In both embodiments, operating member (interface member) (434) (Fig. 10) or operating member (interface member) (444) (Fig. 11) pivots around a pivot axis (P) that is substantially perpendicular to a handlebar axis (HB), wherein pivot

axis (P) is substantially parallel to a rotational axis (X) of a take-up body (control body) (170) (Fig. 3) that is integrally coupled to a drive plate (171). As shown in Figs. 10 and 11, rotational axis (X) also is perpendicular to handlebar axis (HB). Thus, when rotational axis (X) is vertical, pivot axis (P) likewise will be vertical. In view of the broad statement quoted above in the originally-filed application that "the pivot axis (P) could be inclined relative to the handlebar axis (HB) by any degree to accommodate different riding styles," and in view of the vertical pivot axis (P) disclosed in Figs. 10 and 11 (when rotational axis (X) is vertical), it should be clear that claim 25 recites a subset of inclinations wherein, when the device is oriented such that the rotational axis (X) is vertical, the pivot axis (P) extends at least in part in a vertical direction, and one of ordinary skill in the art would immediately know that the applicant had possession of such an invention.

Rejection under nonstatutory obviousness-type double patenting.

Claims 1, 13 and 18.

Claim 1 recites "wherein the pivot axis (P) [of the interface member pressed by the rider] is inclined relative to the handlebar mounting axis (HB)." It is submitted that this feature is neither disclosed or suggested anywhere in view of claims 1, 8, 18 and 19 of Appl. '658.

According to the examiner, the position of mounting member (103) in Appl. '658 can be adjusted by rotating or turning mounting sleeve (103A) relative to handlebar (101). When mounting sleeve (103A) is so rotated, then the angle defined by the handlebar mounting axis (HB) and *rotational axis (X)* will be adjusted therewith. See the last paragraph at page 5 of the final rejection dated July 8, 2009.

The applicant understood the meaning of the examiner's position as follows: In the device shown in Fig. 3 of Appl. '658, a not-shown but well-known fixing bolt normally extends through the opening in the lower right side surface of mounting sleeve (103A) (shown as an oval opening because of the perspective of Fig. 3) and screws into the facing lower left side of mounting sleeve (103A) in order to tighten mounting sleeve around handlebar (101). It was assumed that the examiner meant that the fixing bolt could be loosened so that mounting sleeve (103A) releases its grip on handlebar (101), and then mounting member (103) can be rotated (turned) coaxially around

handlebar (101) (rotated or turned clockwise or counterclockwise in Figs. 4 and 5 in Appl. '658). The examiner agreed with this interpretation in the middle of page 13 of the final rejection.

Given the agreed-upon interpretation, pivot axis (P) in Appl. '658 (which is coaxial with pivot shaft (216) in Figs. 4 and 5 of Appl. '658) never will become inclined relative to handlebar axis (HB) simply by rotating mounting member (103) coaxially clockwise or counterclockwise around handlebar (101) as suggested by the examiner. During such rotation, pivot axis (P) will always be parallel to handlebar mounting axis (HB). There is no reason to modify *pivot axis (P)* in Appl. '658 to be inclined relative to handlebar axis (HB) as required by claim 1. The examiner's reference at the last paragraph at page 5 of the final rejection to the orientation of *rotational axis (X)* is irrelevant because the applicant is not claiming any particular orientation of rotational axis (X) relative to handlebar mounting axis (HB).

The last paragraph at page 14 of the final rejection alleges that the applicant admitted that the pivot axis (P) in Shahana, the prior art used to reject the claims, is inclined relative to the handlebar axis (HB). That is not true. The examiner refers to remarks that accompanied a previous amendment to claim 1. However, the remarks simply provided the definition of whether or not a viewing angle in Shahana is horizontal or vertical. The applicant consistently argued that the pivot axis (P) in the embodiment shown in Shahana's Figs. 1-7 is parallel to the handlebar axis (HB) and is *not* inclined relative to the handlebar mounting axis (HB).

The examiner's reliance on legal precedent from the chemical arts in the last paragraph of page 14 is misplaced. It is not the similarities of mechanical devices that determine patentability, but the differences. *Graham et al. v. John Deere Co.* 383 US 1, 148 USPQ 459 (1966). In any event, the fact that Figs. 2 and 4 of this application are virtually identical to Figs. 2 and 4 of Shahana is irrelevant because the claims in this application do *not* read on that embodiment. Claim 1 is *not* generic to that embodiment.

A persistent problem with this case appears to be that, as stated in the first full paragraph at page 15 of the final rejection, the examiner believes that "the claimed structures and the function they perform are the same as the prior art." However, a comparison of the elected species shown in

Figs. 10 and 11, for example, with the embodiment shown in Figs. 1-7 shows that the operation is entirely different from the rider's perspective. In the device shown in Figs. 1-7, a downward sliding motion of the thumb operates interface member (202). In the elected embodiment shown in Fig. 10, the cyclist operates interface member (434) by a rearward and/or lateral sliding motion of the thumb or finger. In the elected embodiment shown in Fig. 11, the cyclist operates interface member (444) by a forward and/or lateral sliding motion of the thumb or finger. The fact that both devices ultimately cause cable (104) to move does not automatically cause one device to be unpatentable over the other.

The last paragraph at page 16 of the final rejection alleges that the motivation to modify the pivot axis (P) in Appl. '658 such that it is inclined relative to handlebar axis (HB) as required by claim 1 is, *inter alia*, to allow the shifting operation to be performed without requiring precision placement of the rider's hand. The examiner refers to the Summary of the Invention of Appl. '658 to support this allegation. However, as noted above, Appl. '658 teaches only a parallel relationship between pivot axis (P) and handlebar axis (HB).

Rejection under 35 U.S.C. §103(a) over Shahana.

Claims 1-8 and 11-21.

Initially, it is noted that the examiner emphasized four times during the prosecution of this application that Shahana was listed in category "X" in the European Search report for the European patent application that corresponds to this application. See the first paragraph at page 6 of the office action dated April 9, 2008; item (7) at page 3 of the office action dated September 18, 2008; the first paragraph at page 8 of the office action dated January 26, 2009; and the second paragraph at page 17 of the final rejection dated July 8, 2009. However, as stated in the penultimate paragraph at page 7 of applicant's response dated April 13, 2009, it is also true that the European claims corresponding to the claims in this application were distinguished over Shahana and granted long ago for the same inclined pivot axis feature recited in claim 1 of this application. See, e.g., claim 1 in European Patent No. 1,642,821 B1.

Claim 1 recites "wherein the pivot axis (P) [of the interface member pressed by the rider] is inclined relative to the handlebar mounting axis (HB)." According to the examiner, the position of mounting member (103) in Shahana can be adjusted by rotating or turning mounting sleeve (103A) relative to handlebar (101). When mounting sleeve (103A) is so rotated, then pivot axis (P) will be inclined relative to the handlebar axis (HB). See the last two paragraphs at page 8 of the final rejection.

The applicant understood the meaning of the examiner's position as follows: In the device shown in Fig. 3 of Shahana, a not-shown but well-known fixing bolt normally extends through the opening in the lower right side surface of mounting sleeve (103A) (shown as an oval opening because of the perspective of Fig. 3) and screws into the facing lower left side of mounting sleeve (103A) in order to tighten mounting sleeve around handlebar (101). It was assumed that the examiner meant that the fixing bolt could be loosened so that mounting sleeve (103A) releases its grip on handlebar (101), and then mounting member (103) can be rotated (turned) coaxially around handlebar (101) (rotated or turned clockwise or counterclockwise in Figs. 4 and 5 in Shahana). The examiner agreed with this interpretation in the middle of page 13 of the final rejection.

Given the agreed-upon interpretation, pivot axis (P) in Shahana (which is coaxial with pivot shaft (216) in Figs. 4 and 5 of Shahana) never will become inclined relative to handlebar axis (HB) simply by rotating mounting member (103) coaxially around handlebar (101) as suggested by the examiner. During such rotation, pivot axis (P) will always be parallel to handlebar mounting axis (HB). There is no reason to modify the pivot axis (P) in Shahana to be inclined relative to handlebar axis (HB) as required by claim 1.

As for the legal precedent regarding the arrangement of parts cited in MPEP 2144.04 (referenced in the penultimate paragraph at page 8 of the final rejection), such precedent is clear that it does not apply when rearrangement of parts modifies the operation of the device. As noted previously, a comparison of the elected species shown in Figs. 10 and 11, for example, with the embodiment shown in Figs. 1-7 shows that the operation is entirely different from the rider's perspective. In the device shown in Figs. 1-7, a downward sliding motion of the thumb operates interface member (202) and operating body (220). In the elected embodiment shown in Fig. 10, the

cyclist operates interface member (202) and operating body (220) by a rearward and/or lateral sliding motion of the thumb or finger. In the elected embodiment shown in Fig. 11, the cyclist operates interface member (202) and operating body (220) by a forward and/or lateral sliding motion of the thumb or finger. A change of function of a known element is a benchmark of nonobviousness. *Shackelton, et al. v. J. Kaufman Iron Works, Inc., et al.*, 689 F2d 334 (2nd Cir. 1982)(citing *Sakraida v. Ag Pro Inc.* 425 U.S. 273 (1976)).

As noted above, the inclined pivot axis feature, in conjunction with the fact that operating tab (202) (interface member) is *movably* mounted relative to sliding operating body (220) (first operating body) as recited in claim 1, allows the device to accommodate different riding styles without requiring a substantial redesign of the entire shift control device as in other prior art devices. As aptly noted in *Ex parte Chicago Rawhide Mfg. Co.* 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984):

> "The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device."

At the first full paragraph at page 18 of the final rejection, the examiner notes how the *operating force receiving surface (203)* of operating tab (202) of Shahana is inclined relative to a horizontal axis. The examiner then concludes that such an inclination of *operating force receiving surface (203)* of operating tab (202) requires the pivot axis (216) to be inclined therewith. However, both Figs. 4 and 5 of Shahana clearly show operating force receiving surface (203) of tab (202) inclined relative to horizontal axis (H) shown in Fig. 4, yet pivot axis (216) is still parallel to handlebar axis (HB). There is no basis at all to say that an inclination of operating force receiving surface (203) of operating tab (202) requires the pivot axis (216) to be inclined therewith.

The examiner alleges at the first paragraph of page 19 of the final rejection that, since the result of rearranging Shahana's pivot axis would be predictable, then applicant's claims are

unpatentable as a matter of law pursuant to *KSR*. However, *KSR* set forth no such negative rule of invention. The result of a change in a mechanical component is almost always predictable. If the test of patentability were as stated by the examiner, then few, if any, mechanical devices would be patentable. *KSR* was clear in requiring the examiner to set forth a reason *why* one of ordinary skill in the art would want to change the structure of a prior art device to produce the structure recited in the claims. The technique used by Shahana to improve the prior art devices is to provide a pivot axis (P) that is parallel to the handlebar axis (HB), but that is not the technique used to produce the improved device recited in claim 1. Instead, the applicant uses the different technique of inclining the pivot axis (P) relative to the handlebar axis (HB).

At the first paragraph of page 19 of the final rejection, the examiner also states that the results of the device recited in applicant's claim 1 are similar to the ones obtained by applicant's embodiment of Figs. 1-7. Hence, applicant's claim 1 is not patentable as a matter of law based on *KSR*. However, as noted previously, the resulting operation is entirely different from the rider's perspective and is much different from the embodiment shown in Figs. 1-7.

In the second paragraph at page 19 of the final rejection, the examiner states that, during the pivotal movement of Shahana's interface member (202) in the counterclockwise direction, *i.e.*, from the position in Fig. 4 to the position in Fig. 5, interface member (202) inherently passes the position wherein its axis is parallel to the axis (X). However, claim 1 is directed to the inclination of the pivot axis (P) of the interface member, not to the inclination of the plane of the interface member itself. Shahana's pivot axis (P) is defined by pivot shaft (216), and that axis never changes as interface member (202) is operated.

As noted when discussing the nonstatutory double-patenting rejection, a persistent problem with this case appears to be that, as stated in the last paragraph at page 19 of the final rejection, the examiner believes that "the claimed structures and the function they perform are the same as the prior art." However, a comparison of the elected species shown in Figs. 10 and 11, for example, with the embodiment shown in Figs. 1-7 shows that the operation is entirely different from the rider's perspective. In the device shown in Figs. 1-7, a downward sliding motion of the thumb operates interface member (202). In the elected embodiment shown in Fig. 10, the cyclist operates interface

member (434) by a rearward and/or lateral sliding motion of the thumb or finger. In the elected embodiment shown in Fig. 11, the cyclist operates interface member (444) by a forward and/or lateral sliding motion of the thumb or finger. This operation is in no way predicted by Figs. 1-7 of Shahana as alleged at the top of page 20 of the final rejection. Claim 1 recites *structural limitations* that are neither disclosed nor suggested by Shahana.

At the bottom of page 20 of the final rejection, the examiner takes the position that varying the path of movement of Shahana's sliding operating body (220) by plus or minus thirty degrees relative to the plane of the ratchet teeth (171) (a possible variation discussed at paragraph [0017] of Shahana) results in pivot axis (P) being inclined relative to the handlebar axis. Substantial evidence does not support such an allegation. This is best seen from Figs 4 and 5 of Shahana, since those Figures show ratchet teeth plane (T), sliding operating body (220), interface member (202) and pivot shaft (216), wherein pivot shaft (216) defines pivot axis (P) that is perpendicular to the page.

In order to vary the path of movement of sliding operating body (220) by plus or minus thirty degrees relative to ratchet teeth plane (T), sliding operating body (220) would be angled plus or minus thirty degrees relative to ratchet teeth plane (T) in Figs. 4 and 5. There is no need to move interface member (202) or pivot shaft (216) at all. However, even if it were desired to move pivot shaft (216), pivot shaft (216) simply would be moved up or down in Figs. 4 and 5, and pivot shaft (216) (and hence pivot axis (P)) would remain parallel to the handlebar mounting axis (HB). Since sliding operating body (220) simply would be angled up or down in Figs. 4 and 5, there is no reason to angle pivot shaft (216) so that pivot axis (P) is angled relative to the plane of the page (and thereby be inclined relative to handlebar mounting axis (HB)), since such angling of pivot axis (P) would have no benefit, except as discovered by the applicant. There is no suggestion, express or implied, to change the orientation of Shahana's pivot axis (P).

At the penultimate paragraph of page 21 of the final rejection, the examiner takes the position that, since both the claimed device and the prior art device move a lever for pulling and releasing a shift control cable, the results of the operation of the species of Figs. 10 and 11 of the present application are predictable and therefore unpatentable pursuant to *KSR*. The applicant does not broadly claim the pulling and releasing of a shift control cable by the manipulation of a lever. The

applicant claims a specific configuration of an interface member such that the rider uses a very different motion of the hand in order to operate the device. Even if it could be said that, once the pivot axis (P) is inclined as claimed, the operation of the claimed device would be predictable, there still must be a reason why one of ordinary skill in the art would want to modify the prior art devices to produce the inclined pivot axis (P) recited in the claims, and this determination must be made without using the teachings of the present application "to accommodate different riding styles" as recited at paragraph [0025] of the application.

In the second paragraph of page 22 of the final rejection, the examiner states that it would have been obvious to try different angles of the path of the operating body (220) relative to the plane of the ratchet teeth (T) as suggested by Shahana to achieve the inclined angle as claimed. However, it is the inclined angle of the *pivot axis of the interface member* that is being claimed in claim 1, not the inclined angle of the path of the *operating body*. One could vary the path of Shahana's operating body (220) as much as they want, but that would have no effect on the pivot axis defined by pivot shaft (216), since pivot shaft (216) is not connected to operating body (220). Varying the path of Shahana's operating body (220) is not an *identified*, let alone *predictable* solution to any desire of changing how the rider can operate the *interface member* to support an "obvious to try" rationale for rejecting the claims as required by MPEP §2143(E)(2).

In the last two paragraphs at page 22 of the final rejection, the Examiner refers to Figs. 4 and 5 of USP 6,848,335 issued to Kawakami; Fig. 1 of USP 6,564,671 issued to Ose; and Fig. 2 of USP 6,155,132 issued to Yamane as evidence that it is well known to reorient the pivot axis of an interface member to accommodate the different hand positions of cyclists. However, none of those references show an interface member movably mounted relative to a first operating body, wherein the interface member pivots around a pivot axis (P), and wherein pivot axis (P) is inclined relative to a handlebar mounting axis (HB) as required by claim 1. Figs. 4 and 5 of Kawakami show exploded views of front and rear shift operating devices, respectively. In the assembled devices shown in Figs, 2 and 3, levers (71) and (171), respectively, pivot around (unnumbered) pivot axes that are parallel to the handlebar axis in the same manner as Shahana's interface member (202). Ose and Yamane do not even show an interface member that is movably mounted relative to an operating body. Fig. 1 of

Ose discloses interface members (74, 82) that are one-piece with an operating body (86), and Figs. 2-3 of Yamane disclose interface members (61, 81) that are rigidly affixed to corresponding operating bodies (60, 80). Neither Ose nor Yamane disclose or suggest *a pivot axis (P) of an interface member movably mounted to an operating body, wherein pivot axis (P) is inclined relative to a handlebar mounting axis (HB)* as required by claim 1. The inclined pivot axis feature, in conjunction with the fact that operating tab (202) (interface member) is *movably* mounted relative to sliding operating body (220) (first operating body) as recited in claim 1, allows the device to accommodate different riding styles without requiring the substantial redesign of the entire shift control device as required by Kawakami, Ose and Yamane.

Claims 4 and 18

As noted previously, rotating Shahana's mounting sleeve (103A) around handlebar (101) would not change the parallel orientation of pivot shaft (216), and hence pivot axis (P), relative to handlebar mounting axis (HB). Such rotation certainly would not make pivot axis (P) perpendicular to handlebar axis (HB) as recited in claims 4 and 18.

Claim 5

Rotating Shahana's mounting sleeve (103A) around handlebar (101) would not change the perpendicular orientation of pivot shaft (216), and hence pivot axis (P), relative to rotational axis (X), so such rotation certainly would not make pivot axis (P) parallel to rotational axis (X) as recited in claim 5.

Claims 7 and 20

Shahana's operating force applying member (204) does not extend from the operating force receiving member (203). Both members are closely adjacent to and parallel to each other for their entire lengths.

Claims 25 and 26

New claim 25 clarifies that, when the device is oriented such that the rotational axis (X) is vertical, the pivot axis (P) extends at least in part in a vertical direction. This clearly precludes any interpretation of Shahana that involves rotation of Shahana's mounting sleeve (103A) around handlebar (101).

Claim 26 is patentable as a minimum for its dependence on claim 25.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

CLAIM 1. A bicycle shift control device which operates a shifting mechanism via a shift control cable, the shift control device comprising:

a mounting member structured to mount the shift control device to a handlebar, wherein the mounting member defines a handlebar mounting axis (HB);

a control body supported by the mounting member and rotatable about a rotational axis (X) for controlling the shift control cable;

a first operating body having an abutment in a position spaced apart from the control body and which is coupled to the shift control device for displacement between a first home position and a first shift position;

a first transmission which converts the displacement of the first operating body from the first home position to the first shift position into a rotational displacement of the control body, wherein the first transmission includes a plurality of ratchet teeth;

an interface member movably mounted relative to the first operating body and having an operating force receiving surface and an operating force applying surface, wherein the operating force receiving surface is adapted to receive an operating force from a rider;

wherein the interface member pivots around a pivot axis (P) so that the operating force applying surface applies the operating force to the abutment of the first operating body for moving the first operating body from the first home position to the first shift position;

wherein the pivot axis (P) is inclined relative to the handlebar mounting axis (HB); and

wherein the interface member moves in a direction toward a plane (PL) that contains the handlebar mounting axis (HB) and is parallel with the rotational axis (X) when the first operating body moves from the first home position toward the first shift position.

CLAIM 2. The device according to claim 1 wherein the plurality of ratchet teeth are disposed in a ratchet teeth plane (T), and wherein the ratchet teeth plane (T) is parallel to a horizontal axis (H).

CLAIM 3. The device according to claim 1 wherein the plurality of ratchet teeth are disposed in a ratchet teeth plane (T), and wherein a path of movement of the first operating body is substantially parallel to the ratchet teeth plane (T).

CLAIM 4. The device according to claim 1 wherein the pivot axis (P) is substantially perpendicular to the handlebar mounting axis (HB).

CLAIM 5. The device according to claim 1 wherein the pivot axis (P) is substantially parallel to the rotational axis (X).

CLAIM 6. The device according to claim 1 wherein the interface member comprises a lever.

CLAIM 7. The device according to claim 6 wherein the lever comprises:
an operating force receiving member extending from the pivot axis (P); and
an operating force applying member extending from the operating force receiving member.

CLAIM 8. The device according to claim 7 wherein the pivot axis (P) is disposed at a junction between the operating force receiving member and the operating force applying member.

CLAIM 11. The device according to claim 1 wherein the first operating body moves linearly between the first home position and the first shift position.

CLAIM 12. The device according to claim 11 wherein the first operating body moves in a straight line between the first home position and the first shift position.

CLAIM 13. The device according to claim 1 further comprising:
a second operating body coupled to the shift control device for displacement between a second home position and a second shift position; and
a second transmission which converts the displacement of the second operating body from the second home position to the second shift position into a rotational displacement of the control body.

CLAIM 14. The device according to claim 13 wherein the second operating body rotates between the second home position and the second shift position.

CLAIM 15. The device according to claim 14 wherein the second operating body forms a finger contact part in a position spaced apart from the control body.

CLAIM 16. The device according to claim 15 wherein the second operating body rotates around the rotational axis (X).

CLAIM 17. The device according to claim 16 wherein the first operating body moves in a straight line between the first home position and the first shift position.

CLAIM 18. The device according to claim 1 wherein the pivot axis (P) is substantially perpendicular to the handlebar mounting axis (HB) and substantially parallel to the rotational axis (X).

CLAIM 19. The device according to claim 7 wherein the pivot axis (P) extends through an end portion of at least one of the operating force receiving member or the operating force applying member.

CLAIM 20. The device according to claim 19 wherein the operating force receiving member extends away from the pivot axis (P), and wherein the operating force applying member extends away from the operating force receiving member and away from the pivot axis (P).

CLAIM 21. The device according to claim 20 wherein the pivot axis (P) is disposed at a junction between the operating force receiving member and the operating force applying member.

CLAIM 25. The device according to claim 1 wherein, when the device is oriented such that the rotational axis (X) is vertical, the pivot axis (P) extends at least in part in a vertical direction.

CLAIM 26. The device according to claim 25 wherein the operating force applying surface directly applies the operating force to the abutment of the first operating body.

IX. EVIDENCE APPENDIX

1) Claims 1, 8, 18 and 19 of U.S Patent Application No. 11/389,658 entered into the record by the Examiner in the office action dated January 26, 2009.

2) European Patent Application No. 1,134,158 A2 entered into the record by the Examiner in the office action dated April 9, 2008.

3) U.S. Patent No. 6,848,335 issued to Kawakami and entered into the record by the examiner in the office action dated September 18, 2008.

4) U.S. Patent No. 6,564,671 issued to Ose and entered into the record by the examiner in the office action dated September 18, 2008.

5) U.S. Patent No. 6,155,132 issued to Yamane and entered into the record by the examiner in the office action dated September 18, 2008.

X. RELATED PROCEEDINGS APPENDIX

None